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1. (WO 2008/018997) METHOD AND APPARATUS FOR CHARACTERIZING A GLASS MELT BY ULTRASONIC ILLUMINATION

14.02.2008 C03B 5/16 PCT/
US2007/018

A system is provided for characterizing a molten glass, wherein a waveguide (20a) is acoustically coupled to an exterior surface (34) of a quantity of glass melt. An acoustic wave is imparted into the glass melt (15) by a first **transducer** (24a) through a first waveguide (20a). The wave are reflected within the glass melt and received through a second waveguide (20b) and a resulting signal is produced by a second transducer (24b) which is analyzed to characterize the glass melt.

2. (WO 2008/018996) WAVEGUIDE ASSEMBLY FOR IMPARTING ACOUSTIC ENERGY TO A GLASS MELT AND METHOD FOR IMPARTING ACOUSTIC ENERGY TO THE GLASS MELT

14.02.2008 C03B 5/16 PCT/
US2007/018

A waveguide assembly (10) is provided for imparting **ultrasonic** energy to a glass melt (12) at an amplitude sufficient to produce acoustic energy thereby mixing the molten glass. The glass melt (12) may, for example, be flowing through a refractory metal vessel (14). In one configuration, the assembly (10) includes a waveguide (18) acoustically coupled to a **transducer** (16) at one end (22) and the glass melt (12) at the other end (24). The waveguide (18) may be physically coupled to the vessel (14) via a threaded fitting (32, 34) attached to an outside surface of the vessel (14).

3. (WO 2008/018935) ULTRASONIC PRESS USING SERVO MOTOR WITH INTEGRATED LINEAR ACTUATOR

14.02.2008 No IPC Found PCT/
US2007/018

An **ultrasonic** welding system includes an **ultrasonic** welding stack mounted for linear movement and for applying a controlled force and speed to a first workpiece to press the first workpiece against a second workpiece to which the first workpiece is to be joined. The system includes a powered linear actuator coupled to the **ultrasonic** welding stack for moving the stack while applying a controlled force, speed, or a combination thereof to said stack, the actuator including an electrical servo motor producing rotational mechanical motion and an integrated converter converting the rotational motion into linear motion. In one specific implementation, a controller is coupled to the linear actuator for controlling the linear motion.

4. (WO 2007/111909) HAPTIC DEVICE WITH INDIRECT HAPTIC FEEDBACK

04.10.2007 G06F 3/041 PCT/
US2007/009

A haptic device provides indirect haptic feedback and virtual texture sensations to a user by modulation of friction of a touch surface of one or more sensed parameters and/or time. The sensed parameters can include, but are not limited to, sensed position of the user's finger, sensed finger position such as velocity and/or acceleration, sensed finger pressure, and/or sensed direction of motion of the finger. The touch surface to be touched by a user's bare finger, thumb or other appendage and/or by an instrument such as a stylus held by the user.

5. (WO 2007/087411) METHODS OF MANUFACTURE OF SONAR AND ULTRASONIC TRANSDUCER DEVICES AND COMPOSITE ACTUATORS 02.06.2007 H01L 41/047 PCT/US2007/002000
The present invention provides a method of manufacturing piezoelectric transducers that improves performance by reducing the mechanical component interfaces. The method involves the epoxy impregnation and encapsulation of the components within the piezoelectric stack. This is achieved by capillary action that results in a chemical bond. The encapsulation method results in an epoxy conformal coating that provides protection from harsh operational environments and reduces the risk of high voltage electric breakdown.
6. (WO 2007/014183) ULTRASONIC TRANSDUCER CONTROL METHOD AND SYSTEM 01.02.2007 G01D 18/00 PCT/US2006/020000
The present invention relates to methods for velocity control of transducers that can compensate both for age related changes as well as changes that occur during operation. In one aspect of the invention, the non-motional reactive current is measured at two predetermined frequencies (I_{rp}) and one above the resonance frequency (I_{rp}). A correction factor is calculated from these measured currents is used to maintain a constant effector velocity or displacement. In another aspect of the invention, methods are provided for the detection of secondary resonances and end effector fault conditions. In another aspect of the invention velocity control is achieved.
7. (WO 2007/014142) ULTRASONIC TRANSDUCER DEVICES AND METHODS OF MANUFACTURE 01.02.2007 H01L 41/08 PCT/US2006/020000
The present invention provides for single use **ultrasonic** transducers for use in surgical and dental applications. Specifically, the invention comprises one or more of the following features, an active piezo ceramic material that contains less than 2% lead; piezo materials with a high compressive bias force applied to the piezo ceramic elements, a bias bolt sub-assembly that includes a component assembled with a glass-transition point filled epoxy material, and/or a permanently attached end effector with a self-locking taper.
8. (WO 2007/011813) BALANCED ULTRASONIC CURVED BLADE 25.01.2007 H01R 33/00 PCT/US2006/020000
Methods and devices that provide reduced transverse motion in a curved **ultrasonic** blade and/or **ultrasonic** surgical instrument with a **ultrasonic** blade in accordance with embodiments of the present invention includes a curved functional portion of an **ultrasonic** blade. The mass of the curved functional portion lies on the mid-line of a waveguide delivering **ultrasonic** energy to the blade. Balancing in accordance with the present invention, using placement of the center of mass of the curved portion of the blade appropriately, provides blade balance without blade, without reduction of mass and inherent stress increase proximal to the end-effector.
9. (WO 2007/011520) APPARATUS, CIRCUITRY, SIGNALS, PROBES AND METHODS FOR CLEANING AND/OR PROCESSING WITH SOUND 25.01.2007 B06B 3/12 PCT/US2006/020000
The invention utilizes multiple frequency ultrasound generators driving multiple frequency harmonic **transducer** arrays at sweeping frequencies in the megasonic range. Generator signals that increase cavitation efficiency and that have successive time periods with predominantly steady state and predominantly transient cavitation further improve the performance of the cleaning, microbiological inactivation, sonochemistry or process. A monitor monitors the ultrasound and feedback the information to the generator provide consistency of process.
10. (WO 2007/008428) LOW-STRESS ULTRASOUND TRANSDUCER 16.01.2007 H01L 41/00 PCT/US2006/020000
A **transducer** includes a resonator assembly having a first surface and a second surface on opposite sides thereof, a front mass having a first surface of the resonator assembly, a back mass having a surface adjacent to the second surface of the resonator assembly, and a compression assembly mounted on the front mass and the back mass. The compression assembly is adapted to effect compression across the resonator assembly. The assembly contains at least two driven active elements such that when at least one of the driven active elements is driven to increase in thickness the other driven active elements is driven to decrease in thickness.
11. (WO 2006/116508) HIGH POWER ULTRASONIC TRANSDUCER 02.11.2006 H01L 41/00 PCT/

A **transducer** includes a resonator assembly having a first surface and a second surface on opposite sides thereof; a front mass having a first surface of the resonator assembly, a back mass having a surface adjacent to the second surface of the resonator assembly, and a compression assembly mounted on the front mass and the back mass. The compression assembly is adapted to effect compression across the resonator assembly across the surfaces of the front mass and the back mass adjacent to the resonator assembly and first and second surfaces of the resonator assembly. The compression assembly is not in the compression state, and when the compression assembly effects the compression across the res

12. (WO 2006/114919) CUTTING OR GRINDING MACHINE

02.11.2006 B23B 37/00 PCT/
JP2005/024

A cutting or grinding machine is composed of a processing unit having a substrate and an exchangeable cutting or grinding rod fixed to a front portion or rear end, and a rotatable unit having a rotatable support for workpiece, in which the cutting or grinding rod has a **ultrasonic** waveguide in an area between a front end of the rod and a portion at which the rod is fixed to the substrate.

13. (WO 2006/101532) ULTRASONIC MEDICAL DEVICE AND METHOD

28.09.2006 A61B 8/14 PCT/
US2005/039

Ultrasonic devices having **transducer** assembly including a stack of alternating electrodes and piezoelectric elements. A mounting device at a second end is adapted to receive **ultrasonic** vibration from the stack and transmit it from the first to the second end. A bolt (106) is configured to threadedly engaged the mounting device. The **transducer** assembly (182) includes a deformable pressure element (10) that permits insertion of the shaft therethrough, and has a convex side facing the bolt head and a concave side facing the stack in a non-deformed state, applies compression forces to the stack based on the deformation. The deformable pressure element (...)

14. (WO 2006/052482) ULTRASONIC SHEAR WITH ASYMMETRICAL MOTION

18.05.2006 A61B 17/32 PCT/
US2005/039

Devices providing **ultrasonic** clamped cutting using asymmetrical motion include a housing (135) and **ultrasonic** waveguide (179). A cutting blade (178) extends through the center of mass of the **ultrasonic** waveguide (179). An actuating assembly provides opposable movement of a clamping member (140) to the cutting blade (178), the movement defining a vertical plane having a vertical axis (430) orthogonal to both the longitudinal axis (440) of the cutting blade (178). An end-effector (185) coupled to the **ultrasonic** waveguide (179) includes a cutting blade (176) that cuts using **ultrasonic** motion. The center of mass (300) may be offset from the longitudinal axis (400), providing motion of the blade in both the longitudinal and v...

15. (WO 2006/003305) ULTRASONIC WAVE TRANSDUCER FOR MAKING SURFACE LAYERS OF THE EPIDERMIS PERMEABLE

12.01.2006 B06B 1/06 PCT/
FR2005/00

The invention relates to the field of wave transducers for medical or cosmetic use. More particularly the invention concerns an **ultrasonic** device for fast permeabilization of the skin to enable variable-weight active molecules to be transdermally administered. Such use of ultrasound for the administration of active molecules is called sonophoresis. The invention also concerns a device for making permeable biological membranes. One **transducer** (1, 2, 12), characterized in that said **transducer** is capable of generating a specific **ultrasonic** wave corresponding to one of a first low-frequency **ultrasonic** wave and of a second low-frequency **ultrasonic** wave.

16. (WO 2005/030407) ULTRASONIC CLEANING DEVICE

07.04.2005 B08B 1/04 PCT/
JP2004/014

An **ultrasonic** cleaning (1) device is provided, which has the capability of safely and efficiently cleaning an object to be cleaned such as a workpiece. This cleaning device comprises a housing (10) having an opening, **ultrasonic transducer** (20) accommodated in the housing, and a transmission member (30) having an **ultrasonic** incident surface (31) for receiving an **ultrasonic** wave provided from the **ultrasonic transducer**, and a radiation surface (33). The transmission member is supported in the housing such that the **ultrasonic** radiation surface is exposed to outside of the housing. Since the transmission member is made of a rubber material, preferably silicon rubber, the object can be safely cleaned...

17. (WO 2005/030406) ULTRASONIC CLEANING DEVICE

07.04.2005 B05B 17/06 PCT/
JP2004/014

An **ultrasonic** cleaning device (1) is provided, which has the capability of efficiently and safely cleaning an object to be cleaned such as a liquid (2) as a cleaning medium, to which an **ultrasonic** wave is being applied. In this device, the liquid is supplied into a chamber (3) and the **ultrasonic** wave provided from an **ultrasonic transducer** (40) is applied to the liquid in the chamber through an **ultrasonic** transmission member (5). Since a shield member (5) is disposed between the transmission member and an inner surface of the housing to prevent a propagation of the **ultrasonic** wave from the transmission member to the housing, it is possible to reduce transmission loss of the **ultrasonic** wave...

18. (WO 2004/073495) FINGERTIP SURGICAL INSTRUMENTS

02.09.2004 A61B 1/00 PCT/
US2004/000

Disclosed is a minimally invasive surgical instrument that may be used in hand-assisted laparoscopic surgeries. The device is multifunctional and may be mounted directly on a surgeon's fingertip and inserted through an incision to allow the surgeon to manipulate tissue during surgery.

19. (WO 2004/038915) TUNABLE ACOUSTIC WAVE DEVICE

06.05.2004 H03H 9/17 PCT/
SE2003/000

The invention discloses a tunable acoustic wave device (100; 200) comprising a piezoelectric material (120; 220) with a tunable dielectric permittivity of the material is tuned by applying a tuning electric field (190), preferably a DC-bias field, low frequency AC field, or a high frequency electric field superimposed onto an electric field pulse, thereto. By tuning the dielectric permittivity, the operation characteristics of the device (100; 200) may be tuned. The acoustic wave velocity in the material (120; 220) and the resonance frequency and bandwidth of the device (100; 200), may be tuned by applying a tuning electric field (190) may be applied by superimposing it onto the input high frequency electric field signal.

20. (WO 2004/028349) ULTRASONIC SURGICAL INSTRUMENT HAVING AN INCREASED WORKING LENGTH

08.04.2004 A61B 17/32 PCT/
US2003/000

The present invention is an **ultrasonic** surgical instrument having an altered cross sectional area and/or stiffness of 1/2 wave segment of the waveguide or end effector. The waveguide is coupled to an **ultrasonic transducer**. The 1/2 wave segments of the waveguide or end effector can be configured with various geometries and function to extend or decrease the length of a waveguide and/or end effector without adding or removing wave segments. The invention is intended to function with conventional **ultrasonic** transducers at conventional frequencies.

21. (WO 2004/026104) ULTRASONIC SURGICAL INSTRUMENT INCORPORATING FLUID MANAGEMENT

01.04.2004 F16K 7/17 PCT/
US2003/000

Disclosed is an **ultrasonic** surgical device having a distally/proximally movable fluid management system consisting of single lumen or multiple lumens. The invention provides for the delivery of irrigation fluid or the removal of fluid, debris or vapor from the tissue-affecting portion of the blade. The blades of the surgical device, when excited at a natural blade system frequency, will have modal shapes characterized by transverse and / or torsional motion and will have nodal locations for these motions at positions along the tissue affecting length of the blade. The device is designed to allow for the fluid management system to be positioned at one or more motion nodes to facilitate fluid management.

22. (WO 2004/000116) DEVICES AND METHODOLOGIES USEFUL IN BODY AESTHETICS

31.12.2003 A61B 19/00 PCT/
IL2002/000

A methodology and system for lysis or induction of apoptosis in cellulite and fat including directing **ultrasonic** energy at a multiplicity of target volumes in a target region, which target volumes contain cellulite and fat, thereby to selectively lyse or induce apoptosis in the cellulite and fat in the target region. The system may lyse or not induce apoptosis in non-cellulite and non-fat tissue in the target volumes and computerized tracking of the multiplicity of target volumes notwithstanding movement of the body.

23. (WO 2003/092793) ELECTROMECHANICAL TRANSDUCER WITH ERGONOMIC SHAPE

13.11.2003 A61B 8/14 PCT/
US2003/000

A **transducer** (8 or 10) assembly for an **ultrasonic** surgical instrument includes a front driver (14 or 22) having an elongate shaft extending from a stud (30 or 32) extending in an opposite direction. An electromechanical **transducer** (8 or 10) element is disposed around the stud (30 or 32). The **transducer** (8 or 10) assembly also comprises a rear driver (34 or 36) disposed around the stud (30 or 32) on a side of the electromechanical **transducer** (8 or 10) opposite the front driver (14 or 22), the electromechanical **transducer** (8 or 10) elements being clamped between the front driver (14 or 22) and the rear driver (34 or 36). An inertial or damping mass (34) is rigidly connected to the stud (30 or 32) at a point spaced from the front driver (14 or 22).

24. (WO 2003/039381) ULTRASONIC PROBE DEVICE HAVING AN IMPEDANCE MISMATCH WITH RAPID ATTACHMENT AND DETACHMENT MEANS 15.05.2003 A61B 17/00 PCT/US2002/03

An **ultrasonic** tissue ablation device comprising a transversely vibrating small-diameter probe (10) and a coupling assembly for probe detachment that enables the probe (10) to disengage from the device body. The probe detachability allows for insertion, manipulation independently of the device body. The probe (10) can be used with acoustic and/or aspirations sheaths to enhance tissue ablation. The **ultrasonic** energy source and a horn assembly (34). The probe (10) of the present invention is engaged to the device body in a manner that creates an impedance mismatch between the probe (10) and the device body which allows the probe and the device body to operate as separate

25. (WO 2003/030777) ULTRASONIC PROBE DEVICE WITH RAPID ATTACHMENT AND DETACHMENT MEANS HAVING A LINE CONTACT COLLET 17.04.2003 A61B 17/00 PCT/US2002/03

An **ultrasonic** medical device comprising an **ultrasonic** probe (25) and a collet assembly for probe attachment and detachment, and occlusions in blood vessels using the **ultrasonic** medical device. The probe (25) detachability allows insertion, manipulation and withdrawal from the device body. The collet assembly (5) comprises a compression clamp (10) capable of releasably receiving the probe (25), and a compression housing (14) that initiates a minimal area "line-contact" between the collet assembly segments upon engagement. A line-contact lip (21) ensures consistent contact between the compression clamp (10) and the compression housing (14) at a pre-determined location to provide a consistent closure.

Final 23 records

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ultrasonic NEAR transducer: 33122 occurrences in 3691 records.

langevin: 457 occurrences in 262 records.

(**ultrasonic NEAR transducer AND langevin**): 48 records.

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